NODA Note No. 4

Corerament

EP22 -1994 N04

THE NORTHERN FORESTRY PROGRAM: A SIGNIFICANT CONTRIBUTION TO SUSTAINABLE FORESTRY

Brian J. Sykes and Sylvia Alanen

INTRODUCTION

The objective of this note is to provide a complete reference to the broad range of applied research and technology transfer projects being funded under the Northern Forestry Program (NFP). The Northern Forestry Program is one of three federal-provincial programs being carried out under the Canada-Ontario Northern Ontario Development Agreement (NODA). The NFP, a parallel delivery program, is being delivered from 1991-1995 by the Canadian Forest Service (CFS) and the Ontario Ministry of Natural Resources (OMNR). Each organization has responsibility for the implementation of complementary projects under each of the agreement programs. The NFP is designed to meet the joint priorities of Canada and Ontario in achieving sustainable development in forestry.

This note outlines projects being funded by the CFS under the Sustainable Forestry Development Program including: Applied Research, Technology Development and Transfer, Decision Support, Socio-economic Analysis, and Integrated Resource Management (IRM) Demonstration Areas subprograms. Projects were selected by a team (which included specialists from forest research, technology transfer, forest industry, research administration, and nongovernment organizations) from over 360 proposals submitted to the NFP. Projects have been selected based on quality of science, technology transfer approach, client need, cost effectiveness, degree of collaboration, applicability of results, and the contribution of the project to integrated resource management. To qualify, projects have to be completed within a 1- to 3-year time frame, illustrating the short-term applied research focus of the NFP. The IRM Demonstration Areas projects were selected on the basis

of site suitability, access, IRM features, and the availablility of a partner to provide long-term maintenance and to cost share projects.

The broadest definitions of forest and forest resources management were used as terms of reference in two open calls for proposals. As a result, the mix of research includes everything from traditional forest management to other forest values (including wildlife, water, recreational resources, and ecotourism) and the impacts of forestry practices on other elements of the ecosystem. Consistent with the wide range of topics, the program has attracted many leaders in forest science from the private sector, universities, government, and nongovernment organizations.

The program focuses on obtaining information for better tools and ultimately better decisions in the management of Ontario's forests for economic, social, and environmental prosperity. To accomplish this goal, priority was placed on producing results that can be applied by users and ensuring that these are transferred in an effective and timely fashion. Results and practical tools take time to finalize and, in the meantime, many managers are faced with making interim judgements and decisions concerning these issues — sometimes on a daily basis. This information note will provide an overview of the range of projects underway and identify contacts and additional sources of information. Two other reference documents available, the Northern Ontario Development Agreement, Northern Forestry Program: Compendium of Projects (NODA/NFP Technical Report TR-1) and Compendium II (in publishing) describe projects in more detail and outline the objectives, methodology, and expected results for each project.

Natural Resources

Canadian Forest

Ressources naturelles Canada

Service canadien



Ministry of Natural Resources

Ministère des Richesses naturelles

PROJECT DETAIL

The information provided includes the project number, project title, principal investigator, funding commitment, and expected completion date. For ease of use, listings have been subdivided into six major research themes as follows:

• Integrated Resource Management

• Silvicultural Practices

• Forest Protection

• Environmental Impacts

• Planning and Forest Resource Management

• Socio-economic Analysis

• IRM Demonstration Areas

These acronyms are used in the principal investigator titles:

NRCan Natural Resources Canada

OMNR Ontario Ministry of Natural Resources

To obtain more information and, if possible, to exchange information in areas of mutual interest, please feel free to contact either Northern Forestry Program staff or the principal investigator for additional information.

Integrated Resource Management

Project number	Project title	Principal investigator	NFP contribution \$	Target completion date
4005	Techniques for Sustaining Wildlife Populations in Managed Forest Land	D. Welsh, Canadian Wildlife Service, Ontario Region (Nepean)	203,100	31 May 1995
4045	Integrated Modelling of Moose Habitat and Population	P. Duinker, Lakehead University, Thunder Bay	93,732	31 August 1994
4051	Tradeoff Analysis in Protecting Caribou in Multiple-use Forestry in Northwestern Ontario	G. Fox, University of Guelph, Guelph	37,560	31 March 1995
4052	A Market Segmentation Analysis of Desired Ecotourism Opportunities	D. Twynam and D. Robinson, Lakehead University, Thunder Bay	101,019	30 September 1995
4053	Identifying Sites/Opportunities for Forest-based Ecotourism in Northern Ontario	S. Boyd and R. Butler, Butler and Boyd Associates, Strathroy	146,812	30 September 1995
4054	Forest-based Ecotourism in Small Northwestern Ontario Communities - Panacea or Placebo	Margaret Wanlin, Boreal Ecosystems Associates Ltd., Thunder Bay	76,150	March 31 1994
4055	Innovative Ecotourism at the Boreal Edge	A. Salmoni, Laurentian University, Sudbury	45,200	30 April 1994
4205	Remote Tourism and Timber Management in Boreal Forest Landscapes	P. Duinker, Lakehead University, Thunder Bay	41,280	30 September 1994
4206	Developing Analytical Procedures for Establishing the Level of Protection for Forest Fire Management to Support Sustainable Forestry in Ontario	D.L. Martell, Faculty of Forestry, University of Toronto	125,700	30 June 1994
4220	Predicting Canopy Closure for Habitat Modelling	A. Aldred, Dendron Resource Surveys Inc., Ottawa	26,830	31 July 1994
4224	Integration of New Technologies for Deer Yard Assessment	A. Aldred, Dendron Resource Surveys Inc., Ottawa	124,180	30 September 1995

Silviculture Practices

Project number	Project title	Principal investigator	NFP contribution \$	Target completion date
4003	Competitiveness of Nutrient-loaded Seedlings on Vegetation-rich Boreal Mixedwood Sites	V. Timmer, Faculty of Forestry, University of Toronto	228,600	31 March 1995
4006	Regeneration of Black Spruce Cutovers Using Mini-plugs	R. Booth, Domtar Inc., •Red Rock	130,060	15 June 1995
4009	Efficacy of Release Treatments on Regeneration Strategies of Major Competing Species of Northwestern Ontario	A. Mallik, Department of Biology, Lakehead University, Thunder Bay	165,000	31 December 1995
4011	Low Cost, Antistress Antioxidants for Enhanced Growth and Stress Tolerance in Conifer Transplants	T.J. Blake, Faculty of Forestry, University of Toronto	225,000	31 March 1995
4019	Natural Regeneration of Softwood and Hardwood Tree Species After Full-tree Harvesting in Northwestern Ontario	E. Symons, Earthworks, Thunder Bay	159,347	31 December 199
4022	Yellow Birch and Sugar Maple Thinning: Effects on Diameter and Height Increment, Crown Size and Stem Form	J.E. Wood, NRCan, Sault Ste. Marie	18,700	31 March 1994
4023	Black Spruce Outplantings on Boreal Mixedwood Sites: Effect of Vegetation Management and Stock Size	J.E. Wood, NRCan, Sault Ste. Marie	21,850	30 June 1994
4026	Low-cost Regeneration Methods for Black Spruce on Peatlands	A. Groot, NRCan, Sault Ste. Marie	54,000	30 June 1995
4030	Black Spruce Stand Development in Naturally-regenerated Strip Cuts at Fifteen Years	J.K. Jeglum, NRCan, Sault Ste. Marie	90,100	30 June 1994
4031	Seedbed and Microsite Effects on the Growth of Seeded Upland Black Spruce	R.L. Fleming, NRCan, Sault Ste. Marie	35,500	31 March 1994
4038	Partial Cutting in Boreal Mixedwoods: Evaluation of Harvesting Operations, Site Disturbance and Damage to Residual Trees and Advance Growth	J.B. Scarratt, NRCan, Sault Ste. Marie	217,000	31 March 1996
4039	Small Forest Openings to Promote the Establishment and Growth of White Spruce in Boreal Mixedwood Stands	A. Groot, NRCan, Sault Ste. Marie	148,000	31 August 1995
4041	Prediction of Residual Crown Cover for White Pine in Central Ontario	C. Bentley, Consultant, Churchill, ON	19,076	31 March 1994
4042	Uneven-aged Silviculture for Peatland Second Growth Black Spruce	J.R. Gemmell, Abitibi- Price Inc., Iroquois Falls	179,000	30 September 199
4043	Methodologies for Maintaining the Softwood Component in Boreal Mixedwoods	R.M. Edmonds, McChesney Lumber Division, E.B. Eddy Forest Products Ltd., Timmins	54,709	30 September 199

4044	Reforestation Using Timber Harvesting Wastes	J.G. Marshall, University of Waterloo, Waterloo	40,000	30 September 1995
4048	Management of Black Spruce on Highly Productive Sites	R.L. Fleming, NRCan, Sault Ste. Marie	35,400	30 September 1995
4049	Influence of Environmentally Considerate Silviculture on Bird and Mammal Populations in Boreal Mixedwoods	K.F. Abraham, Southern Terrestrial Ecosystem Section, OMNR, Maple; and A.R. Rodgers, Centre for Northern Forest Ecosystem Research, OMNR, Thunder Bay	243,120	30 September 199.
4102	Development and Transfer of Methods for Predicting the Abundance and Distribution of Advance Growth in Black Spruce Ecosystems in Northeastern Ontario	R.W. Arnup, Ecological Services for Planning Limited, Timmins	200,210	31 July 1995
4103	A New Approach to Training Trainers in Spacing and Thinning	H.J. Kelly, BGLN Economic Development Centre Inc., Geraldton	30,626	31 March 1994
4108	Autecology of Selected Competitive Species in the Boreal and Great Lakes-St. Lawrence Forest Regions of Ontario	H.M. Kershaw, Devlin Consulting Services, Sudbury	36,956	31 March 1994
4109	Field Manual for Direct Seeding Black Spruce and Jack Pine in Northern Ontario	M.J. Adams, NRCan, Sault Ste. Marie	58,000	30 September 199
4111	The Use of Alternative Harvesting and Silvicultural Systems in Boreal Mixedwoods—Review and Synthesis of Information	J.B. Scarratt, NRCan, Sault Ste. Marie	66,500	31 December 199
4113	Publication of "Guide to the Application of Mechanical Site Preparation Equipment in Northwestern Ontario"	B.J. Sutherland, NRCan, Sault Ste. Marie	17,400	31 March 1993
4114	Black Spruce Silviculture: a Compendium of Notes	A. Cameron and G. Crook, NRCan, Sault Ste. Marie	122,000	31 March 1994
4115	Demonstrating Sustainable Integrated Resource Management to Private Landowners in Northern Ontario	C.R. Smith, NRCan, Sault Ste. Marie	98,980	31 December 199
4122	Aerial Seeding of Prescribed Burns	F.F. Foreman, NRCan, Sault Ste. Marie	18,550	31 August 1995
4123	Standard Procedure for Testing Aerial Seeding Equipment	JD. Leblanc, NRCan, Sault Ste. Marie	12,860	31 March 1995
4124	Effects of Alternative Silvicultural Practices on Wildlife	C. Wedeles, ESSA Technologies Ltd.	41,104	31 October 1994
4125	Risk Assessment of Residual Stands Following Forest Harvesting	R.L. Fleming, NRCan, Sault Ste. Marie	38,975	30 September 199
4126	Economic Analysis of White Pine Management	K. Rollins, University of Guelph, Guelph	6,600	31 October 1993

4209	Cone Crop Monitoring Systems and Decision Support Systems for Jack Pine and Black Spruce Seed Orchards	P. de Groot, NRCan, Forest Pest Management Institute, Sault Ste. Marie	170,000	31 March 1995
4211	Seed Zone Delineation for Jack Pine in the Ontario Northwest Region by Short-term Testing and Geographic Information Systems	W.H. Parker, School of Forestry, Lakehead University	318,547	15 June 1995
4223	Stand Dynamics of Boreal Mixedwood Forests of Ontario	D.J. Smith, Consultant, Sault Ste. Marie	149,600	31 December 1995
4226	Application of Real-Time Differential GPS and Real-Time GPS Tracking for Fire and Resource Management	D. Tortosa, ELIRIS Inc., Sault Ste. Marie	26,950	31 March 1995

Forest Protection

Project number	Project title	Principal investigator	NFP contribution \$	Target completion date
4004	The Development of Bialaphos and Glufosinate-ammonium as Silvicultural Herbicides	G.R. Stephenson, University of Guelph	363,680	31 December 1995
4010	Alternative Biological and Biorational Control of Botrytis Grey Mold in Containerized Conifer Stock	J. Sutton, University of Guelph	126,000	31 March 1995
4012	Silvicultural Prescriptions for Management of White Pine Weevil in Jack Pine	S.M. Smith, Faculty of Forestry, University of Toronto	156,192	31 March 1995
4024	Guidelines for Rating Root Rot Hazard Based on Ecological Site Character and Inoculum Level	H.L. Gross, NRCan, Sault Ste. Marie	185,200	30 June 1995
4027	Development of Aerial Survey Methodology for the Evaluation of Balsam Fir and White Spruce in Stands Affected by the Eastern Spruce Budworm	J.H. Meating, NRCan, Sault Ste. Marie	27,000	31 March 1993
4028	Evaluation of Site Preparation Methods on the Development and Progression of Root Decay Fungi with Emphasis on Armillaria	M.T. Dumas, NRCan, Sault Ste. Marie	86,500	31 December 1995
4029	Monitoring Changes in Forest Fire Hazard using Satellite Remote Sensing Data	T.J. Lynham, NRCan, Sault Ste. Marie	78,000	30 June 1994
4033	Management Guidelines for Jack Pine Budworm	G.M. Howse, NRCan, Sault Ste. Marie	160,000	31 March 1997
4112	Advanced Forest Pest Management Training Program	C. Howard, NRCan, Forest Pest Management Institute, Sault Ste. Marie	70,500	31 March 1995
4117	Root Rot Fungi and their Relationships with Above-ground Decay in Three Conifers in Ontario	R.D. Whitney, Forest Pathology Consultant, Sault Ste. Marie	22,850	31 December 1993

			the state of the s	
4119	Forest Fire Behavior Guidelines for Jack Pine Stands in Northern Ontario	B.J. Stocks, NRCan, Sault Ste. Marie	17,000	30 September 1995
4120	Field Guide to Ontario Tree Diseases	C.N. Davis, NRCan, Sault Ste. Marie	38,000	31 March 1995
4121	Prescribed Fire Ignition Strategies for Northern Ontario	D.J. McRae, NRCan, Sault Ste. Marie	20,000	31 March 1995
4201	Application of Portable GPS/Desktop- GIS for Fire Management Support	D. Tortosa, ELIRIS Inc., Sault Ste. Marie	70,342	30 June 1993
4207	Predictive Tools for Management of the Jack Pine Budworm	V.G. Nealis, NRCan, Sault Ste. Marie	156,500	31 August 1995
4210	Development of an Eastern Spruce Budworm Hazard Rating System for the Forests of Northern Ontario	J.H. Meating, NRCan, Sault Ste. Marie	264,000	31 March 1995
4217	Predicting Budworm Outbreaks with Pheromone Traps	C.J. Sanders, NRCan, Sault Ste. Marie	31,000	30 September 1995

Environmental Impacts

Project number	Project title	Principal investigator	NFP contribution \$	Target completion date
4008	Assessing the Short Term Effects of Timber Harvest within Riparian Zones on the Wildlife of Wetlands	M. Laronde, Teme-Augama Anishnabai, Bear Island, Ontario	266,140	15 September 1995
4013	Evaluating Changes to Physical Microsite Properties Effected by High- speed Mixing Site Preparation Methods	M. Ryans, Forest Engineering Research Institute of Canada, Pointe Claire, Quebec	25,508	31 July 1994
4025	Assessment of Current and Alternative Site Preparation Methods: Environmental Impacts on Forest Soil and Implications for Vegetation Control and Biodiversity	B. Sutherland, NRCan, Sault Ste. Marie	115,900	31 March 1995
4037	Impact of Harvesting and Site Preparation on Forest Productivity, Soil Nutrient Reserves and Nutrient Leaching from Jack Pine Cutovers	N.W. Foster, NRCan, Sault Ste. Marie	132,000	30 June 1995
4047	Glyphosate Effects on Nutritional Quality of Moose Browse	H. Cumming, School of Forestry, Lakehead University, Thunder Bay	41,398	31 December 1995
4050	Environmental Impacts of Forestry Practices on Boreal Forest Soil Organisms	J.A. Addison and K.N. Barber, NRCan, Forest Pest Management Institute, Sault Ste. Marie	130,000	30 September 1995
4116	Wetland Ecosystem Classification in Ontario, and Impacts of Forestry on Wetlands	J.K. Jeglum, NRCan, Sault Ste. Marie	101;500	31 May 1995

Planning and Forest Resource Management

Project number	Project title	Principal investigator	NFP contribution \$	Target completion date
4002	Satellite and Airborne Remote Sensing for Forest Ecosystem Classification in Northwestern Ontario	P.J. Howarth, Earth-Observations Laboratory, Institute for Space and Terrestrial Science, Waterloo	96,850	31 June 1995
4007	Preparation of a Case Study Report on the Photo Interpretation of NWOFEC Soil Types and Vegetation Types in the Roslyn Lake Pilot Mapping Study Area	A. Walsh, For-Site Consulting, Sault Ste. Marie	28,220	04 June 1993
4015	White and Red Pine Volume Growth under Uniform Shelterwood Management in Algonquin Park	R.D. Pick, Algonquin Forestry Authority, Pembroke	101,000	31 July 1994
4020	Development of Methods for Forest Ecosystem Classification (FEC) Mapping for Northeastern Ontario	R. Arnup, Ecological Services for Planning Ltd., Timmins	209,350	31 March 1995
4021	Enhancing Ontario's Forest Resources Inventory with Stand Structure and Forest Ecosystem Vegetation Types using Large Scale Aerial Photography	U. Nielsen, Dendron Resource Surveys Inc., Ottawa	225,500	31 August 1994
4032	Development of Interim Guidelines to Maintain Long Term Productivity in Boreal Ecosystems of Ontario	J.K. Jeglum, NRCan, Sault Ste. Marie	51,000	30 September 199
4034	Impact Assessment of <u>Scleroderris</u> Canker in Ontario	A. Hopkin, NRCan, Sault Ste. Marie	68,020	31 March 1995
4035	The Refinement of Prescribed Burning Procedures for Northern Ontario	D.J. McRae, NRCan, Sault Ste. Marie	65,000	31 March 1995
4040	Impacts of Spruce Budworm and Budworm Spraying on Succession in Boreal Mixedwood Forest	C.J. Sanders, NRCan, Sault Ste. Marie	86,300	31 March 1996
4046	Modelling of Post-harvest Forest Succession in Northern Ontario	D.A. Welsh, Canadian Wildlife Service, Ontario Region, Nepean	53,000	September 1995
4104	Technology Transfer: Forestry Canada's HSG, Wood Supply Model	A. Welch, Dendron Resource Surveys Ltd., Ottawa	124,900	31 July 1993
4107	Transfer of Volumetric Wood Supply Analysis Technology	K. Lindquist, Forest Computer Consulting, Chapleau	76,500	08 October 1993
4110	Publication of Two NODA Technical Reports Dealing With: 1. Boreal Forest Humus Forms in NW Ontario; and, 2. <u>Sphagnum</u> spp. Habitats in Relation to NW Ontario FEC Types	R.A. Sims, NRCan, Sault Ste. Marie	12,100	31 May 1993
4202	Development of an Enhanced OLI- based Prime Land Inventory System for Northwestern Ontario	G.M. Wickware, Geomatics International Inc., Burlington	135,750	31 July 1993

4203	Sustainable Development Indicators for the Forest Resources of Ontario	P.N. Duinker, Forest Management and Policy, School of Forestry, Lakehead University, Thunder Bay	25,080	31 May 1993
4204	Visibility Analysis: A Decision Support Technique for Forest Resource Management Planning	A. Welch, Dendron Resource Surveys Ltd., Ottawa	34,725	31 March 1994
4208	Bio-environmental Indices: a New Approach to Trade-off Analysis in Forest Planning	D.W. McKenney and B. Mackey, NRCan, Sault Ste. Marie	450,000	31 March 1995
4212	GIS Methodologies to Develop Spatially-based Boreal Ecosystem Models in the Rinker Lake Research Area, NW Ontario	R.A. Sims, NRCan, Sault Ste. Marie	101,877	31 March 1995
4213	Calibration of "ONTWIGS" Forest Projection System for the Mixedwood Types of North Central Ontario	B. Payandeh, NRCan, Sault Ste. Marie	50,000	30 September 1993
4214	Development of Post-planting Forest Vegetation Management Predictive Models	R.A. Fleming, NRCan, Forest Pest Management Institute, Sault Ste. Marie	19,900	30 September 199
4215	ENSTRAT: A Decision Support Tool for Selecting Forest Field Plots in Ontario	D. McKenney, V. Nealis, and A. Hopkin, NRCan, Sault Ste. Marie; and, B. Mackey, Australian National University, Canberra, Australia	65,000	01 September 199:
4216	Forestry Investment Analysis Made Simple	A. Ghebremichael, NRCan, Sault Ste. Marie; J. Williams, Consultant, Scarborough; and, M. Vasievich, United States Forest Service, East Lansing, Michigan	23,000	31 March 1995
4218	Economic Wood Supply from Alternative Silvicultural Systems	L. Van Damme, Lakehead University, Thunder Bay	78,638	30 September 199
4219	Even-aged Boreal Forest Management Planning Models: Applications	P. W. Street, MITIG Forestry Services Ltd., Thunder Bay	65,000	30 November 1994
4221	An OBM Terrain Analysis Toolbox for Resource Managers	P.W. Street, MITIG Forestry Services Ltd., Thunder Bay	50,000	28 February 1995
4222	Image Analysis of Wetlands in Northwestern Ontario	B.G. Warner, Wetlands Research Centre, University of Waterloo, Waterloo	25,000	30 June 1994

Socio-economic Analysis

Project number	Project title	Principal investigator	NFP contribution \$	Target completion date
4305	Community Development Impact Model	A.A. Kubursi, Econometrics Research Ltd., Oakville, Ontario	86,650	31 September 1994
4306	Economic Evaluation of Forest Research: A Framework for Allocation of Research Funds	G. Fox, University of Guelph, Guelph	85,560	31 March 1995
4307	The Economic Value of Canoeing in Relation to Forest and Park Management	P. Boxall, NRCan, Edmonton	38 085	31 March 1996

IRM Demonstration Areas

Project number	Project title	Principal investigator	NFP contribution \$	Target completion date
4403	Jack Pine Demonstration Forest	K. Ley, E.B. Eddy Forest Products, Espanola	54,000	31 March 1995
4404	Porcupine Demonstration Forest	W. Saari, Timmins Economic Development Corporation, Timmins	48,800	31 March 1995
4405	Claybelt Demonstration Forest	D. Haldane, 6/70 Community Forest, Kapuskasing	37,400	31 March 1993
4406	IRM Demonstration Forest Exhibit	P. Tozer, The Friends of Algonquin Park, Whitney	45,000	31 March 1995
4407	Woodland Community Partnership Demonstration Forest	B. Smith, Abitibi-Price Inc., Thunder Bay	97,730	31 March 1995
4408	Elk Lake Demonstration	P. Tufford, Elk Lake Community Forest, Elk Lake	43,650	30 June 1995
4409	Kingfisher Demonstration Forest	L. Thomson, Kingfisher Partner Group, Thunder Bay	100,000	30 September 1995
4410	Natural Resources Centre Demonstration Forest Trail	P. Street, Mitig Forestry Services Ltd., Thunder Bay	25,000	30 May 1994
4411	Black Sturgeon Demonstration Forest	J.B. Scarratt, NRCan, Sault Ste. Marie	21,000	30 September 1995

SUMMARY

This information note presents the broad range of research topics being investigated under the Northern Forestry Program. Over the next 3 years these projects will produce a tremendous amount of new information and decision-making tools that can be readily applied by intended users. Technology transfer is critical to ensure that the results get into the hands of users and do not stay with the program and/or the researcher. Only in this way can they have a major influence on the management of Ontario's forest resources.

Effective technology transfer will require a quality product, suitable marketing, and detailed user training. To help focus on priorities and user needs, your input is required with regard to which projects should be a priority and what is the best technology transfer approach. Please feel free to make suggestions and to contact NFP staff when scheduling an event where NFP projects could make a contribution.

The success of the Northern Forestry Program will not be determined on the basis of the number of reports but rather on the extent to which NFP projects provide results that are adopted and applied.

ACKNOWLEDGMENT

Participation in the NFP by such a wide range of principal investigators must be recognized. They took the chance and competed for limited funding. Their commitment and diligence in seeing these projects to completion will be reflected in the overall success of this significant sustainable forestry research initiative.

Additional copies of this publication are available from:

Natural Resources Canada
Canadian Forest Service, Ontario Region
Great Lakes Forestry Centre
P.O. Box 490
Sault Ste. Marie, Ontario
P6A 5M7
(705)949-9461
(705)759-5700(FAX)

©Minister of Supply and Services Canada 1994 Catalogue No. Fo 29–41/4–1994E ISBN 0-662-22454-X ISSN 1198–2233

